Pennsylvania Grade 8

FlyBy Math™ Alignment
Academic Standards for Mathematics

2.1 Numbers, Number Systems and Number Relationships

2.1.8 Grade 8 Standard	***FlyBy Math*™ Activities**
D. Apply ratio and proportion to mathematical problem situations involving distance, rate, time and similar triangles.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

2.3 Measurement and Estimation

2.3.8 Grade 8 Standard	***FlyBy Math*™ Activities**
A. Develop formulas and procedures for determining measurements (e.g., area, volume, distance).	--Use the distance-rate-time formula to predict and analyze aircraft conflicts. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
B. Solve rate problems (e.g., rate x time = distance, principal x interest rate = interest).	--Use the distance-rate-time formula to predict and analyze aircraft conflicts.
D. Estimate, use and describe measures of distance, rate, perimeter, area, volume, weight, mass and angles.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

2.4 Mathematical Reasoning and Connections

2.4.8 Grade 8 Standard	***FlyBy Math*™ Activities**
F. Use measurements and statistics to quantify issues (e.g., in family, consumer science situations).	--Use calculations and experimental evidence to predict, describe, and explain several aircraft conflict problems.

2.5 Mathematical Problem Solving and Communication

2.5.8 Grade 8 Standard	***FlyBy Math*™ Activities**
A. Invent, select, use and justify the appropriate methods, materials and strategies to solve problems.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

B. Verify and interpret results using precise mathematical language, notation and representations, including numerical tables and equations, simple algebraic equations and formulas, charts, graphs and diagrams.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
C. Justify strategies and defend approaches used and conclusions reached.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

2.7 Probability and Predictions

2.7.8 Grade 8 Standard	***FlyBy Math™* Activities**
B. Present the results of an experiment using visual representations (e.g., tables, charts, graphs).	--Use calculations and experimental evidence to predict, describe, and explain several aircraft conflict problems. --Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs.
C. Analyze predictions (e.g., election polls).	--Predict outcomes and explain results of mathematical models and experiments.
D. Compare and contrast results from observations and mathematical models.	--Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

2.8 Algebra and Functions

2.8.8 Grade 8 Standard	***FlyBy Math™* Activities**
G. Represent relationships with tables or graphs in the coordinate plane and verbal or symbolic rules.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
H. Graph a linear function from a rule or table.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
J. Show that an equality relationship between two quantities remains the same as long as the same change is made to both quantities; explain how a change in one quantity determines another quantity in a functional relationship.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

2.11 Concepts of Calculus

2.11.8 Grade 8 Standard	***FlyBy Math™* Activities**
B. Describe the concept of unit rate, ratio and slope in the context of rate of change.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

	-- Interpret the slope of a line in the context of a distance-rate-time problem.